WHAT IS CLAIMED IS:

1. A method of rendering an image comprising at least one light source, a first, shadow-casting object with a second, shadow-receiving object located on the side of the first shadow-casting object remote from said at least one light source, the method comprising:

generating a shadow mask which identifies for each of a plurality of pixels on the shadow receiving surface a grey level representing the intensity of shadow in each pixel, the intensity being determined utilizing the distance between the shadow-casting object and the shadow-receiving object.

2. The method according to claim 1, comprising the steps of:

generating the distance between the shadow casting object and the shadow receiving surface by generating a primary depth being the distance between the light source and the shadow-casting object and a secondary depth being the distance between the light source and the shadow-receiving surface; and

comparing the primary and secondary depths.

3. The method according to claim 2, wherein the primary depth is stored in a primary depth buffer and the secondary depth is stored in a secondary depth buffer.

4. The method according to claim 1, wherein each grey level is generated using a texture hierarchy having respectively different levels of blur.

5. The method according to claim 1, wherein a first pass of the image is implemented from the point of view of said at least one light source, prior to generating the shadow mask.

6. The method according to claim 5, wherein a second pass of the image is implemented from the point of view of a camera, said second pass being implemented after the step of generating the shadow mask.

7. The method according to claim 1, wherein the shadow mask is used to render the image by adjusting the color of each pixel in the rendered image based on said grey level representing the intensity of shadow.

8. A computer system for rendering an image comprising at least one light source, a first shadow-casting object with a second shadow-receiving object located on the side of the first shadow-casting object remote from said at least one light source, the computer system comprising:

a shadow mask memory in which is stored a shadow mask which identifies for each of a plurality of pixels on the object receiving surface a grey level representing the intensity of shadow in each pixel, the intensity having been determined utilizing the distance between the shadow-casting object and the shadow-receiving object; and

processing means for utilizing the shadow mask to render the image by adjusting the color of each pixel based on said grey level representing the intensity of shadow.

9. The computer system according to claim 8, comprising:

a primary depth buffer arranged to store a shadow map from a first pass, being for each of the plurality of pixels the distance between said at least one light source and the first shadow-casting object; and

a secondary depth buffer arranged to store for each of a plurality of pixels the distance between said at least one light source and the shadow-receiving surface.

10. The computer system according to claim 9, comprising a shadow map memory into which the shadow map from the primary depth buffer is transferred for use in a second pass, so that the primary depth buffer can be initialized as a classic depth buffer for that second pass.

11. The computer system according to claim 8, comprising shadow mask generation means for generating shadow masks wherein each grey level is generated using a texture hierarchy having respectively different levels of blur.

12. The computer system according to claim 8, wherein the processing means includes a fragment shader for utilizing the shadow mask to adjust the color of each pixel in each of a plurality of image fragments.

13. An image rendering pipeline including a polygon identification stage and a pixel rendering stage, wherein the pixel rendering stage comprises:

a rasterizer which rasterizes pixel parameters for each pixel, including a color parameter;

a texture mapping stage which modifies said color parameter according to texture values; and

a shadow mask determination stage which generates a shadow mask identifying for each of a plurality of pixels on a shadow receiving surface a grey level representing the intensity of shadow in each pixel, the intensity having been determined utilizing the distance between a shadow-casting object and the shadow-receiving object;

wherein the texture value is modulated using each grey level whereby soft shadows in the final image can be rendered.

14. A method for generating a shadow in an image of a shadow caster which is positioned between a light source and a shadow receiver, comprising:

calculating a distance between points on the shadow receiver and points on the shadow caster which are aligned with the light source;

creating a shadow mask from those calculated distances;

applying the shadow mask when rendering the image such that an image intensity of points on the shadow receiver depends on the calculated distance.

15. The method of claim 14 wherein the image intensity is greater for smaller calculated distances and smaller for greater calculated distances.

16. The method of claim 15 wherein an edge of the shadow is sharper for smaller calculated distances and blurrier for greater calculated distances.

17. The method of claim 14 wherein the shadow image intensity at each point on the shadow receiver is inversely related to the calculated distance for that point.

18. The method of claim 14 wherein calculating comprises:

determining a primary depth from the light source to the point on the shadow caster;

determining a secondary depth from the light source to the aligned point on the shadow receiver; and

comparing the primary and secondary depths.

19. The method of claim 14 wherein image intensity for the shadow is represented by a gray level value.

20. The method of claim 19 wherein shadow color is based on gray level.

21. A computer system for rendering an image containing a shadow of a shadow caster which is positioned between a light source and a shadow receiver, comprising:

a memory storing a shadow mask including information identifying a distance between points on the shadow receiver and points on the shadow caster which are aligned with the light source; and

an image rendering processor that renders an image of the shadow receiver to include the shadow with an image intensity at points on the shadow receiver that depends upon the calculated distances in the stored shadow mask.

22. The computer system according to claim 21, wherein the processor performs image fragment shading based on the stored shadow mask to adjust a color of each point on the shadow receiver for each image fragment.

23. The computer system of claim 21 wherein the image intensity is greater for smaller calculated distances and smaller for greater calculated distances.

24. The computer system of claim 21 wherein an edge of the shadow image is sharper for smaller calculated distances and blurrier for greater calculated distances.

25. The computer system of claim 21 wherein the shadow image intensity at each point on the shadow receiver is inversely related to the calculated distance for that point.

26. An image rendering pipeline, comprising:

a polygon identification stage; and

a pixel rendering stage;

wherein processing through the pixel rendering stage is performed twice, a first pass for rendering a shadow map for a shadow caster positioned between a light source and a shadow receiver and creating a shadow mask which includes information identifying a distance between points on the shadow receiver and points on the shadow caster which are aligned with the light source, and a second pass for rendering the image from a selected point of view according to the light source such that an image intensity at points on the shadow receiver depends upon the calculated distances in the shadow mask.

27. The pipeline of claim 26 wherein the image intensity is greater for smaller calculated distances and smaller for greater calculated distances.

28. The pipeline of claim 26 wherein an edge of the shadow image is sharper for at points on the shadow receiver with smaller calculated distances and blurrier for greater calculated distances.

29. The pipeline of claim 26 wherein the shadow image intensity at each point on the shadow receiver is inversely related to the calculated distance for that point in the shadow mask.